AMENDMENTS

Claim amendments:

The following shows the status of all claims:

---

1. (Currently Amended) A device information acquisition method for acquiring device information from devices connected to a network constituted by a local bus or a plurality of buses including the local bus and one or more remote buses connected to the local bus through bridges, comprising:

the discrimination step of discriminating whether the network includes one or more remote buses;

the bus ID acquisition step of acquiring a bus ID assigned to each of the remote buses;

the information acquisition step of acquiring device information from all devices connected to the network; and

the information discarding step of, when at least one of the remote buses is disconnected from the network, discarding device information of devices connected to the disconnected remote bus,

wherein if it is discriminated in the discrimination step that the network does not include one or more remote buses, the information acquisition step is executed with respect to all devices connected to the local bus, and

if it is discriminated in the discrimination step that the network is constituted by one or more remote buses, the information acquisition step is executed with respect to all devices connected to a bus having a bus ID acquired in the bus ID acquisition step,

wherein a counting node having a counter indicating a number of times of occurrence of bus initialization is connected to each bus of the network,

wherein the method further comprises the acquisition step of periodically acquiring a value of a counter of the counting node corresponding to a remote bus, and

wherein the information acquisition step is performed again with respect to each of the devices connected to a remote bus when a value different from the previously acquired value is acquired in the acquisition step for that remote bus.

2.   (Previously Presented) A method according to claim 1, wherein the discrimination step comprises checking whether the bridges are connected to the local bus, thereby discriminating whether the network includes one or more remote buses.

3.   (Previously Presented) A method according to claim 1, wherein the discrimination step comprises discriminating, if the value of the bus ID acquired in the bus ID acquisition step is a predetermined value, whether the network is constituted by a single bus, and discriminating, if the value of a bus ID acquired in the bus ID acquisition step is other than the predetermined value, that the network is constituted by one or more remote buses.

4.   (Previously Presented) A method according to claim 1, wherein
each of the bridges on the local bus and holds forwarding information for determining whether to forward asynchronous packets to remote buses, and
the bus ID acquisition step comprises acquiring forwarding information from all bridges connected to the local bus.

5.   (Previously Presented) A method according to claim 1, wherein
the network comprises at least one bus ID management node for managing bus ID usage information, and
the bus ID acquisition step comprises acquiring bus IDs assigned to all the buses by acquiring the bus ID usage information from the bus ID management node.

6.   (Original) A method according to claim 1, wherein the information acquisition step comprises:

the identifier acquisition step of acquiring an identifier assigned to each of the devices connected to the buses of the network; and

the individual device information acquisition step of acquiring the device information from each device identified by the identifier acquired in the identifier acquisition step.

7.   (Previously Presented) A method according to claim 6, wherein

the network comprises at least one identifier management node for managing the identifiers acquired in the identifier acquisition step by writing the identifiers in identifier usage information, and

the individual device information acquisition step is performed with respect to each of the devices identified by the identifiers written in the identifier usage information.

8.   (Previously Presented) A method according to claim 6, wherein

at least one device information holding node for holding the device information acquired in the individual device information acquisition step is connected to each of the buses of the network and performs the identifier acquisition step and the individual device information step with respect to each of the devices connected to each bus, and

the device information is acquired from the device information holding node.

9.   (Previously Presented) A method according to claim 1, wherein

the method further comprises the initialization notification request step of requesting respective nodes connected to respective remote buses to notify occurrence of bus initialization in the respective remote buses, and

the information acquisition step is performed again with respect to each device connected to a remote bus upon reception of a notification of initialization of that remote bus.

10.   (Previously Presented) A method according to claim 1, wherein

a counting node having a counter indicating a number of times of occurrence of bus initialization is connected to each bus of the network,

the method further comprises the acquisition step of periodically acquiring a value of a counter of the counting node corresponding to a remote bus, and

the information acquisition step is performed again with respect to each of the devices connected to a remote bus when a value different from the previously acquired value is acquired in the acquisition step for that remote bus.

11.   (Currently Amended)   A device information acquisition method for acquiring device information from devices connected to a network constituted by a local bus or a plurality of buses including the local bus and one or more remote buses connected to the local bus through bridges, comprising:

the discrimination step of discriminating whether the network includes one or more remote buses;

the bus ID acquisition step of acquiring a bus ID assigned to each of the remote buses;

the information acquisition step of acquiring device information from all devices connected to the network; and

the information discarding step of, when at least one of the remote buses is disconnected from the network, discarding device information of devices connected to the disconnected remote bus,

wherein if it is discriminated in the discrimination step that the network does not include one or more remote buses, the information acquisition step is executed with respect to all devices connected to the local bus, and

if it is discriminated in the discrimination step that the network is constituted by one or more remote buses, the information acquisition step is

executed with respect to all devices connected to a bus having a bus ID acquired in the bus ID acquisition step,

wherein each of the bridges on the local bus ~~and~~ holds forwarding information for determining whether to forward asynchronous packets to remote buses,

wherein the bus ID acquisition step comprises acquiring forwarding information from all bridges connected to the local bus,

wherein the method further comprises:

the update notification request step of requesting the bridge connected to the local bus to notify when the forwarding information held by the bridge is updated; and

the forwarding information check step of checking whether a bit updated from a first state value to a second state value and a bit updated from the second state value to the first state value exist in the forwarding information when a notification to the update notification request step is received,

wherein, when the bit updated from the first state value to the second state value is detected in the forwarding information check step, the information acquisition step is performed with respect to each device connected to a bus having a bus ID represented by the bit, and

wherein, when the bit updated from the second state value to the first state value is detected, the information discarding step is performed with respect to each device connected to a bus having a bus ID represented by the bit.

12.   (Currently Amended) A device information acquisition method for acquiring device information from devices connected to a network constituted by a local bus or a plurality of buses including the local bus and one or more remote buses connected to the local bus through bridges, comprising:

the discrimination step of discriminating whether the network includes one or more remote buses;

the bus ID acquisition step of acquiring a bus ID assigned to each of the remote buses;

the information acquisition step of acquiring device information from all devices connected to the network; and

the information discarding step of, when at least one of the remote buses is disconnected from the network, discarding device information of devices connected to the disconnected remote bus,

wherein, if it is discriminated in the discrimination step that the network does not include one or more remote buses, the information acquisition step is executed with respect to all devices connected to the local bus, and

if it is discriminated in the discrimination step that the network is constituted by one or more remote buses, the information acquisition step is executed with respect to all devices connected to a bus having a bus ID acquired in the bus ID acquisition step,

wherein each of the bridges on the local bus ~~and~~ holds forwarding information for determining whether to forward asynchronous packets to remote buses,

wherein the bus ID acquisition step comprises acquiring forwarding information from all bridges connected to the local bus,

wherein the method further comprises:

the forwarding information acquisition step of periodically acquiring the forwarding information held by the bridge connected to the local bus; and

the forwarding information check step of checking whether a bit updated from a first state value to a second state value and a bit updated from the second state value to the first state value exist in the forwarding information acquired in the forwarding information acquisition step,

wherein, when the bit updated from the first state value to the second state value is detected in the forwarding information check step, the information acquisition step is performed with respect to each device connected to a bus having bus ID represented by the bit, and

when the bit updated from the second state value to the first state value is detected, the information discarding step is performed with respect to each device connected to a bus having a bus ID represented by the bit.

13.   (Previously Presented) A device information acquisition method for acquiring device information from devices connected to a network constituted by a local bus or a plurality of buses including the local bus and one or more remote buses connected to the local bus through bridges, comprising:

the discrimination step of discriminating whether the network includes one or more remote buses;

the bus ID acquisition step of acquiring a bus ID assigned to each of the remote buses;

the information acquisition step of acquiring device information from all devices connected to the network; and

the information discarding step of, when at least one of the remote buses is disconnected from the network, discarding device information of devices connected to the disconnected remote bus,

wherein if it is discriminated in the discrimination step that the network does not include one or more remote buses, the information acquisition step is executed with respect to all devices connected to the local bus, and

if it is discriminated in the discrimination step that the network is constituted by one or more remote buses, the information acquisition step is executed with respect to all devices connected to a bus having a bus ID acquired in the bus ID acquisition step,

wherein the network comprises at least one bus ID management node for managing bus ID usage information,

wherein the bus ID acquisition step comprises acquiring bus IDs assigned to all the buses by acquiring the bus ID usage information from the bus ID management node,

wherein the method further comprises the bus ID change check step of periodically acquiring the bus ID usage information and determining on the basis

of the acquired bus ID usage information whether a newly used bus ID or a bus ID that has not been used exists, and

when existence of the newly used bus ID is detected in the bus ID change check step, the information acquisition step is performed with respect to each device connected to a bus identified by the bus ID, and when existence of a bus ID that has not been used is detected, the information discarding step is performed with respect to each device connected to a bus identified by the bus ID.

14.   (Original) A method according to claim 1, further comprising updating the acquired device information by periodically performing the discrimination step, the bus ID acquisition step, and the information acquisition step.

15.   (Canceled).

16.   Canceled).

17.   (New) A device controller for acquiring device information in which a function of devices is written from the devices connected to a network constituted by a single bus which is a local bus to which the devices are connected or a network formed by connecting, through bridges, a plurality of buses including the local bus and remote buses to which the devices are not connected, the device controller comprising:

discriminating means for discriminating whether the network is constituted by a plurality of buses or a single bus;

bus ID acquisition means for acquiring a bus ID assigned to each of the remote buses;

information acquisition means for acquiring device information from all devices connected to the network; and

information discarding means for, when at least one of the remote buses is disconnected from the network, discarding device information of devices connected to the disconnected remote bus,

wherein if it is discriminated by the discrimination means that the network is constituted by a single bus, the information acquisition means acquires information with respect to all devices connected to the local bus, and

if it is discriminated by the discrimination means that the network is constituted by a plurality of buses, the information acquisition means acquires information with respect to all devices connected to the buses each having the bus ID acquired by the bus ID acquisition means.

18.   (New) A device controller according to claim 17, wherein the discrimination means checks whether the bridges are connected to the local bus, thereby discriminating whether the network is constituted by a plurality of buses.

19.   (New) A device controller according to claim 17, wherein the discrimination means discriminates, if the value of the bus ID acquired by the bus ID acquisition means is a predetermined value, whether the network is constituted by a single bus, and discriminates, if the value of the bus ID is other than the predetermined value, that the network is constituted by a plurality of buses.

20.   (New) A device controller according to claim 17, wherein
each of the bridges receives an asynchronous packet on the local bus and holds forwarding information for determining whether to forward the asynchronous packet to the remote buses, and

the bus ID acquisition means acquires forwarding information from all bridges connected to the local bus.

21.   (New) A device controller according to claim 17, further comprising:

at least one bus ID management node for managing bus ID usage information in which all bus IDs assigned to at least one bus constituting the network is connected to the network, and

wherein the bus ID acquisition means acquires bus IDs assigned to all the buses by acquiring the bus ID usage information from the bus ID management node.

22.   (New) A device controller according to claim 17, wherein

the information acquisition means comprises:

identifier acquisition means for acquiring an identifier assigned to each of the devices connected to the buses of the network; and

individual device information acquisition means for acquiring the device information from each device identified by the identifier acquired by the identifier acquisition means.

23.   (New) A device controller according to claim 22, further comprising:

at least one identifier management node for managing the identifiers, acquired by performing the identifier acquisition means with respect to the respective devices connected to each bus, by writing the identifiers in identifier usage information is connected to each of the buses of the network, and

wherein the individual device information acquisition means performs information acquisition with respect to each of the devices identified by the identifier written in the identifier usage information acquired from the identifier management node.

24.   (New) A device controller according to claim 17, further comprising:

initialization notification request means for requesting the node connected to the remote bus to notify occurrence of bus initialization in each of the remote buses, and

wherein the information acquisition means performs information acquisition again with respect to each of the devices connected to the remote bus upon reception of a notification by the initialization notification request means.

25.   (New) A device controller according to claim 17, further comprising:

at least counting node having a counter indicating the number of times of occurrence of bus initialization in the single bus or the plural buses of the network is connected to each bus; and

means for periodically acquiring a value of the counter of the counting node connected to the remote bus,

wherein the information acquisition means performs information acquisition again with respect to each of the devices connected to each of the remote buses when a value different from the previously acquired value is acquired by the acquisition means.

26.   (New) A device controller according to claim 21, further comprising:

update notification request means for requesting the bridge connected to the local bus to notify that the forwarding information held by the bridge is updated; and

forwarding information check means for checking whether a bit updated from a first state value to a second state value and a bit updated from the second state value to the first state value exist in the forwarding information when a notification by the update notification request means is received,

wherein, when the bit updated from the first state value to the second state value is detected by the forwarding information check means, the information acquisition means performs information acquisition again with respect to each device connected to a bus having a bus ID represented by the bit, and when the bit updated from the second state value to the first state value is detected, the information discarding means performs information

discarding with respect to each device connected to a bus having a bus ID represented by the bit.

27.   (New) A device controller according to claim 21, further comprising:

forwarding information acquisition means for periodically acquiring the forwarding information held by the bridge connected to the local bus; and

forwarding information check means for checking whether a bit updated from a first state value to a second state value and a bit updated from the second state value to the first state value exist in the forwarding information acquired by the forwarding information acquisition means, and

wherein, when the bit updated from the first state value to the second state value is detected by the forwarding information check means, the information acquisition means performs information acquisition again with respect to each device connected to a bus having bus ID represented by the bit, and when the bit updated from the second state value to the first state value is detected, the information discarding means performs information discarding with respect to each device connected to a bus having a bus ID represented by the bit.

28.   (New) A device controller according to claim 22, further comprising:

bus ID change check means for periodically acquiring the bus ID usage information and checking on the basis of the acquired bus ID usage information whether a newly used bus ID or a bus ID that has not been used exists, and

wherein, when existence of the newly used bus ID is detected by the bus ID change check means, the information acquisition means performs information acquisition again with respect to each device connected to a bus identified by the bus ID, and when existence of a bus ID that has not been used is detected, the information discarding means performs information discarding with respect to each device connected to a bus identified by the bus ID.

29.   (New) A device information acquisition system, comprising:

a device controller which includes:

discriminating means for discriminating whether the network is constituted by a plurality of buses or a single bus;

bus ID acquisition means for acquiring a bus ID assigned to each of the remote buses;

information acquisition means for acquiring device information from all devices connected to the network; and

information discarding means for, when at least one of the remote buses is disconnected from the network, discarding device information of devices connected to the disconnected remote bus,

wherein if it is discriminated by the discrimination means that the network is constituted by a single bus, the information acquisition means acquires information with respect to all devices connected to the local bus, and

if it is discriminated by the discrimination means that the network is constituted by a plurality of buses, the information acquisition means acquires information with respect to all devices connected to the buses each having the bus ID acquired by the bus ID acquisition means; and

a bridge for forming a network by connecting a plurality of buses to which devices are connected, the bridge including:

transmission means for, upon reception of a read request output by the device controller for information held by the bridge, transmitting the information to the device controller.

30. (New)   A device information acquisition method of acquiring device information in which a function of devices is written from the devices connected to a network constituted by a single bus which is a local bus to which the devices are connected or a network formed by connecting, through bridges, a plurality of buses including the local bus and remote buses to which the devices are not connected, comprising:

a discrimination step of discriminating whether the network is constituted by a plurality of buses or a single bus;

a bus ID acquisition step of acquiring a bus ID assigned to each of the remote buses;

an information acquisition step of acquiring device information from all devices connected to the network; and

an information discarding step of, when at least one of the remote buses is disconnected from the network, discarding device information of devices connected to the disconnected remote bus,

wherein if it is discriminated in the discrimination step that the network is constituted by a single bus, the information acquisition step is executed with respect to all devices connected to the local bus, and

if it is discriminated in the discrimination step that the network is constituted by a plurality of buses, the information acquisition step is executed with respect to all devices connected to the buses each having the bus ID acquired in the bus ID acquisition step.

31.   (New) A method according to claim 30, wherein the discrimination step comprises checking whether the bridges are connected to the local bus, thereby discriminating whether the network is constituted by a plurality of buses.

32.   (New) A method according to claim 30, wherein the discrimination step comprises discriminating, if the value of the bus ID acquired in the bus ID acquisition step is a predetermined value, whether the network is constituted by a single bus, and discriminating, if the value of the bus ID is other than the predetermined value, that the network is constituted by a plurality of buses.

33.   (New) A method according to claim 30, wherein

each of the bridges receives an asynchronous packet on the local bus and holds forwarding information for determining whether to forward the asynchronous packet to the remote buses, and

the bus ID acquisition step comprises acquiring forwarding information from all bridges connected to the local bus.

34.   (New) A method according to claim 30, wherein

at least one bus ID management node for managing bus ID usage information in which all bus IDs assigned to at least one bus constituting the network is connected to the network, and

the bus ID acquisition step comprises acquiring bus IDs assigned to all the buses by acquiring the bus ID usage information from the bus ID management node.

35.   (New) A method according to claim 30, wherein

the information acquisition step comprises:

an identifier acquisition step of acquiring an identifier assigned to each of the devices connected to the buses of the network; and

an individual device information acquisition step of acquiring the device information from each device identified by the identifier acquired in the identifier acquisition step.

36.   (New) A method according to claim 35, wherein

at least one identifier management node for managing the identifiers, acquired by performing the identifier acquisition step with respect to the respective devices connected to each bus, by writing the identifiers in identifier usage information is connected to each of the buses of the network, and

the individual device information acquisition step is performed with respect to each of the devices identified by the identifier written in the identifier usage information acquired from the identifier management node.

37.   (New) A method according to claim 35, wherein

at least one device information holding node for holding the device information acquired in the individual device information acquisition step is connected to each of the buses of the network by performing the identifier acquisition step and the individual device information step with respect to each of the devices connected to each bus, and

the device information is acquired from the device information holding node.

38.   (New) A method according to claim 30, wherein

the method further comprises an initialization notification request step of requesting the node connected to the remote bus to notify occurrence of bus initialization in each of the remote buses, and

the information acquisition step is performed again with respect to each of the devices connected to the remote bus upon reception of a notification to the initialization notification request step.

39.   (New) A method according to claim 30, wherein

at least counting node having a counter indicating the number of times of occurrence of bus initialization in the single bus or the plural buses of the network is connected to each bus, the method further comprises an acquisition step of periodically acquiring a value of the counter of the counting node connected to the remote bus, and

the information acquisition step is performed again with respect to each of the devices connected to each of the remote buses when a value different from the previously acquired value is acquired in the acquisition step.